GASLIGHT PRINTING

By

R. R. RAWKINS.

GASLIGHT PRINTING

By

R. R. RAWKINS.

▽

FOREWORD.

THE aim of this booklet is to set forth, as simply as possible, the best methods of producing good prints on the Gaslight papers made by the Rajar Company.

I have purposely omitted special or complicated formulæ, believing that the finest all-round results are obtained by following the instructions given.

R. R. RAWKINS.

GASLIGHT PRINTING

The Name.

"GASLIGHT" Paper is so called because the whole operations of exposing, developing and fixing can be carried out in gaslight in an ordinary room at night. It is a development paper and the image is not seen until after development.

The Working Light.

The great popularity of Gaslight printing amongst amateurs is due to the brilliant results so easily obtained and to the comfortable working conditions. Many a winter's evening can be pleasantly passed in a comfortable well warmed ordinary room at home, lit in the usual way, printing one's holiday negatives, and fulfilling that oft-made (and broken) promise to send copies to friends. The only precaution necessary is to prevent direct light from falling on the sensitive paper, and it is obvious that, as gaslight or other form of artificial light is used to print the image from a negative, any direct rays falling upon the paper during handling would fog it.

A three-fold draught screen is extremely useful in an ordinary room at night for providing the necessary shade, and all operations of opening the packet, filling the frame, development and fixation can be carried out on a table placed in the shadow of the screen. If the room is illuminated by very bright electric metal filament lamps it is advisable to shade them by tving over them (in bag shape) some yellow fabric, but in this case one of the lamps should be left unshaded so that it can be used for making the exposures.

Class of Negative.

There is a popular notion, still much in evidence, that Gaslight paper is only suitable for very thin poor negatives and that the resulting prints are invariably hard and chalky. At the present moment there is a tremendous amount of energy (on the part of manufacturers) being expended to produce Gaslight papers suitable for every grade of negative. So successful have been the efforts of Rajar Company in this direction that they have now put on the market three grades of paper, and I feel convinced that in a few years' time Gaslight paper will completely oust Bromide paper as a means of producing contact prints of the very finest quality. In view of the above statement, the answer to the question as to which is the best kind of negative to use, I unhesitatingly reply "any kind of negative" with the latest products of Rajar Company.

Grades of Paper.

There are three definite grades of Gaslight paper, each with their own characteristic rendering of gradation, and are made in a very large variety of surfaces, in paper and card.

Vigorous.—Suitable for obtaining good plucky prints from negatives that are very thin, flat, and lacking in contrast—will give a good print from a mere "ghost" of a negative.

Normal.—Specially suitable for medium negatives, *i.e.*, those which are neither harsh in contrasts nor very flat. Splendid results can be obtained from well exposed, delicately graded negatives.

Soft.—Made on entirely new lines to produce perfect prints from "strong" negatives, or what some workers call "good" negatives—no negative is too hard for this grade. Suitable for producing prints of the finest quality, rich in "tone" or depth, yet quite free from any suggestion of hardness.

A paper possessing enormous latitude in both exposure and development, without any tendency to fog.

To put the matter in a nutshell, I may say that the whole secret of successful Gaslight printing is to choose the right grade of paper to suit the negative. There is now no need to reduce or intensify negatives to suit the paper.

Handling the Paper.

The papers are put up in packets, and must be opened in weak artificial light as mentioned under the heading of "The working light." Care must always be taken not to touch the coated or sensitive side with wet or greasy fingers, or with fingers contaminated with chemicals. The coated side of the Matt paper is easily ascertained by biting one corner of it. All papers have a tendency to curl very slightly, always with the coated side inwards. In storing the sensitive papers it is important to keep them well away from gas, sulphide fumes and damp.

Exposure.

So many factors govern the exposure that only a rough idea can be given as to the actual time of exposure. The density or colour of the negative, the illuminant, the distance from the light, and the colour of print required, are the principal factors. From an average negative (*i.e.*, one with full detail and only moderate density and of a black colour) the exposure at eight inches from an ordinary gas burner will be from one to two minutes. It is best to expose as close as possible to the light, provided it will give even illumination. For example, a ¼-plate negative will require to be six inches away, and a whole-plate, twelve inches.

The Printing Frame.

The distance of the printing frame from the source of light is so important a factor in the production of regular results that it is advisable to use some contrivance that will give the distances at a glance. A board, about two feet long and six inches wide, should be marked off in sections, say at four, six, eight, ten, and so on up to twenty-four inches from one end. At these marks raised strips of wood can be nailed so that they form a groove for standing the printing frame on. The end of the board should of course be placed close up to the illuminant.

Finding the Exposure.

Seeing that the finest results are obtained by correct exposure, cut a strip from the longest side of the sensitive paper, place it in the printing frame in contact with a typical part of the negative, and expose it in sections, so that upon development and fixing the correct exposure can be noted.

The frame containing the strip should have four marks on it, each one representing about a quarter of the negative, the front of the frame covered by a piece of card, and when the exposing light is ready, the card should be slid along to expose one-quarter of the negative for a certain number of seconds. The card is then moved again to expose another quarter for the same number of seconds, and so on until the whole four quarters have been exposed.

The first section will have received four times the exposure of the last. This strip is then developed, fixed and examined to determine which of the sections gives the best rendering of the negative.

Once having obtained the correct exposure for a certain distance from the source of light, it is then only a matter of simple calculation to ascertain correctly the exposure for other distances from the same negative. The exposure varies as the square of the distance, so that if ten seconds be the correct exposure at one foot from the flame, at two feet it will be necessary to give four times the exposure, viz: forty seconds.

For the *Vigorous* and *Normal* grades the best results are obtained by giving correct exposure, followed by fairly quick development, but with the *Soft* grade there is considerable latitude—the exposure for this *Soft* grade may in special circumstances be increased considerably in order to obtain the pleasing warm black or olive tone.

The Exposing Light.

Some amateurs print by an ordinary oil lamp, the exposure running into some minutes, and they adopt the plan of developing one print whilst another print is exposing.

Incandescent gas is a good illuminant, the bye-pass movement being of great service, but electric metal-filament lamps are the best of all.

Magnesium ribbon may also be used, burning about two inches at a distance of 12 inches between light and frame, but here again trial and error will best give the correct exposure.

Preparing for Development.

On a table away from the direct lamp arrange two clean porcelain dishes in the following way:—One for the developer on the right hand side, and another (larger) dish on the left hand for the fixing solution. Always use the right hand for development and the left for turning the prints over in the fixing bath.

The Developer

Ready made developing solutions for Gaslight papers can be obtained from most dealers and chemists, but for those who prefer to make their own, we give full particulars. The two most popular developers are:—Metol (or Monomet)—Hydrokinone, and Diamidophenol (Amidol), but we prefer to confine our remarks to the former developer. The Amidol developer gives excellent results, but has certain drawbacks that make it unsuitable for amateur use. In solution it does not keep and it has a strong tendency to discolour the finger nails. The Metol (or Monomet) Hydrokinone developer keeps well, does not stain the finger nails, and can be used more than once.

It is important to dissolve the chemicals in the order given, and to use the developer at about 60° Fahr.

Metol (or Monomet) Hydrokinone developer.

Water (warm)	20 ounces
Metol (or Monomet)... ...	16 grains
Hydrokinone	60 grains
Sulphite of Soda (cryst.) ...	1 ounce
Carbonate of Soda (cryst.)...	1 ounce
Potassium Bromide	5 grains

Dissolve the Metol in the water and add the other ingredients, stirring all the time. The resulting solution should be quite clear and colourless, and will keep indefinitely in well stoppered bottles.

Developing the Prints.

Prints on the Vigorous and Normal grades develop fairly quickly, and are fully developed in thirty seconds to one minute, consequently certain precautions are necessary to ensure an even flow of developer over the coated side of the paper. A good way is to first pour the developer into the dish, tilt the dish towards you so that the solution is at one side, then quickly slide the exposed paper face up at the deep end and drop the dish so that the developer flows evenly over the paper. Do not attempt to develop a number of prints at one time, but just rock the dish and watch the progress of development. If the picture rushes up and is sufficiently dark in a few seconds, the exposure has been too long, whilst if the picture is not dark enough at the end of one minute, the exposure has been insufficient. No useful purpose can be served by prolonging development, indeed it may introduce fog.

When development is complete, the print can be placed direct into the fixing bath, but we recommend a quick rinse in water after development, or by immersing the print in a "stop" bath, made up by adding 2 drams of Acetic Acid to 20 ounces of water.

Gaslight prints do not lose any depth in the fixing bath.

Using Developer Twice.

The used developer can be saved for future use, and in that case it should be stored in a separate bottle. With old developer or solution that has been used for a number of prints, there is a tendency to give green, rusty looking prints, and when this occurs the developer should be thrown away.

Development for Warm Blacks.

To produce warm black to olive green tones, the method of development is entirely different. The Soft grade is particularly suitable for these tones or colours, the results being very pleasing and distinctive. The exposure must be increased and the developer diluted. Development must not be carried to finality, but stopped when the exact depth required is reached. Thus it will be seen that, given a fairly good negative and a dozen pieces of paper, twelve good prints can be produced every time, providing the exposure errs on the over rather than on the under side. If the amount of Potassium Bromide in the developer is increased, the colour of the image will be warmer, but we find that generous exposure followed by development in a well diluted developer gives fine colours.

The Fixing Bath.

A solution of plain Hypo will fix Gaslight paper, but I strongly recommend the following simple bath which minimises the risk of stains, and is very clean working.

Fixing Bath for Gaslight Papers.

Hyposulphite of Soda (Hypo)...	2½ ounces
Potass. Metabisulphite	¼ ounce
Water	20 ounces

Fixing the Prints.

Always use plenty of fixing bath, and have at hand a small wooden paddle, so that when the first print is quickly slid into the bath it can be pushed well under.

Avoid putting the fingers in the fixing solution until you have several prints in it which require to be turned over and over.

The fixing solution must have free access to the back and front of the print, or stains will occur. The bath should be about 60° to 65° Fahr., and fixation will be complete in about ten minutes.

The prints are then transferred to the washing water.

Washing the Prints.

Wash in running water for at least half-an-hour or in twelve changes, taking care that the prints do not stick together. The object of washing is to remove all the hypo from the gelatine film and also from the pores of the paper.

Drying.

Glossy surface prints should be squeegeed on to a polished surface if a very high gloss is required. Matt and Semi-Matt prints can be pinned up, or placed on a clean towel to dry. When nearly dry, flatten the prints by drawing them under the edge of a flat ruler, or over the edge of an open drawer.

FAILURES DESCRIBED.

Yellow Stains.

These are caused by handling the paper with fingers contaminated with Hypo or other chemical, or by failure to completely immerse the print in the fixing bath.

Brown Spots or Blue Patches.

These are caused by air-bells attaching themselves to the print in the fixing bath. Prints should be kept on the move for at least the first minute after immersing in the fixing bath.

White circular Spots.

These are caused by air-bells adhering to the print in development, and most frequently happen when the print is developed face down.

Grey Fog.

If this appears all over the print it is caused by working in too strong a light, or by allowing direct light to fall upon the surface of the paper when opening the packet, or in filling the frame, or too little Bromide in the developer.

If the grey fog is in patches it is due to handling the print before or during development with fingers contaminated with Hypo.

Yellow Fog.

If this appears over the whole of the print, it is caused by prolonged development, or by taking the print out of the developer and allowing the air to oxidise the developer by a prolonged inspection before fixing.

Blisters.

These are seldom met with, but when they do occur, the cause is either too strong a fixing bath, too long immersion in it, or by too great a difference in temperature between the solutions and washing water.

GASLIGHT PRINTING

Gaslight prints can be toned to quite a variety of colours in Sepia, Blue and Red.

TONING METHODS.

Sulphide Toning.

This method produces very warm sepias, but if the black prints have been over-exposed the colour is a trifle yellowish. This drawback can however be obviated by special treatment as described below. The best results are obtained by toning a print that has been correctly exposed and fully developed.

Briefly described, the black print is, after thorough fixing and well washing, placed in a bath which bleaches the image, washed, and immersed in a sulphiding solution.

The BLEACHING BATH, which can be used over and over again, is made as follows:—

Potassium Bromide...	... 600 grains
Potassium Ferricyanide	... 400 ,,
Water to...	... 20 ounces

The SULPHIDE Stock Solution is made as follows;—

Sodium Sulphide (pure) ...	1 ounce
Water to	... 10 ounces

The image will almost disappear in the bleacher, and the prints should be rinsed in water and placed in a working bath of the sulphide solution made up as follows:—

Stock Sodium Sulphide Solution	½ ounce
Water to	10 ounces

The prints quickly re-develop to a warm sepia colour and then only require washing to complete the operation.

If a cool sepia is required by using the sulphide process the procedure is as follows:—

(1) Place the black print *first* in the sulphide working bath.
(2) Wash well, and bleach.
(3) Wash slightly and re-immerse in sulphide working bath.

Toning with Hypo Alum.

The prints should be fixed in an acid alum fixing bath, or hardened after fixing in an alum bath.

The Toning Solution is prepared as follows:

Hot Water	20 ounces
Hypo	4 ounces

When dissolved, add—

Alum	¾ ounce

The solution is milky in appearance but must not be filtered and must be shaken up when taken for use.

As a new bath has a tendency to reduce the prints it is a good plan to boil the solution for a few minutes, and place in a few pieces of unused Gaslight paper, or a few small crystals of nitrate of Silver, previously dissolved in a little water.

To tone, place the prints in the solution and gradually heat up to 120° Fahr. Toning takes place in 10 minutes after the solution reaches 100°. Remove and place in tepid alum solution (1 in 40); then wash as usual. Keep the used toning bath and add new stock as required.

The colours produced are cool sepia and brown.

Toning with the "Rajar" Sepia Toner.

This is the simplest method of all, and consists of making up a working bath from the concentrated solution sold in bottles by most chemists and dealers. The working bath is made up as follows :—

"Rajar" Sepia Toner ...	10 drops
Water to	10 ounces.

The above strength is correct, and the bath should not be made up stronger than one drop to the ounce of water. The fixed and well washed black prints are placed in the bath (preferably at a temperature of 70° Fahr.) and kept moving for about 10 minutes. They are then washed for at least fifteen minutes, and dried.

The colours are cool sepia and brown, and the results are permanent.

Red and Blue Tones.

For red tones first tone the prints in Sulphide, Hypo Alum, or in "Rajar" Sepia Toner, and immerse in following solution.

Ammonium Sulphocyanide
40 grains in water... 18 ozs.

Gold Chloride 4 grains in water... 2 ozs. Add Gold solution gradually to the Sulphocyanide solution.

When toned, remove, wash slightly, and place in a fixing bath of three ounces of Hypo to the pint of water for three minutes. Wash for fifteen minutes.

For Blue Tones.

Place the *black* prints direct into above solution until toned blue—remove, fix and wash.

CHOICE OF SURFACE.

The Rajar Company now manufacture Gaslight papers in such a variety of surfaces that should satisfy the requirements of the most exacting worker. In every surface, both paper-thickness and card-thickness can be obtained. Postcards are also supplied cut with a deckled edge which adds considerably to artistic effect, especially with the rough card. I have grouped the different surfaces under four heads:—Glossy, Satin, Matt Smooth and Matt Rough.

The Glossy Surface.

This is most suitable for small prints or technical subjects where every possible detail is required to be seen, or for prints for reproduction. The Vigorous grade gives prints of brilliant contrast from quite poor negatives. Squeegeed on glass the surface is very highly glazed and strips easily.

The Satin Surface.

Also described as and very similar to—Semi-Matt, Silky, Velvet and Carbon. This surface is a great favourite because it has the property of retaining, when dry, the rich juicy blacks observed in the wet prints. It renders all the detail in the negatives and is suitable for portraits, landscape, architecture, etc. Good tones or colours can be obtained by any of the methods described. It is made in both White and Cream base, the latter being described as *Cream Satin*, which is very similar to Chamois Satin, Semi-Matt Cream, Silky Cream, Velvet Cream and Carbon Cream.

Matt Smooth.

This is somewhat similar to Ivory Matt, Porcelain and Platino Matt Smooth, and is a delightful paper for portrait or landscape work, the surface lending itself well to 'working up,' or finishing and colouring.

The fine Matt surface renders very satisfactorily the details of the negatives, and is without the slightest sheen. Prints have the appearance of fine platinum prints.

The Cream surface is called Cream Matt Smooth, and is very similar to Chamois Matt Smooth and Cream Platino Matt Smooth. These Cream varieties give splendid sepia tones, and the effect produced by printing say a ¼-plate negative by masking on to whole-plate paper is unique—especially if card-thickness is used.

Matt Rough.

This is quite a new feature, and the surface will be much appreciated by the pictorial worker.

It is similar to Platino Matt Rough, whilst the Cream variety is known as Cream Matt Rough, also Chamois Matt Rough, and Cream Platino Matt Rough.

This is the surface to use where great breadth of effect is desired. The soft grade is particularly suitable for the finest exhibition work, and tones splendidly.

Big Pictures from Small Negatives

Can be easily produced on
"Rajar" Enlarging
Rough Surface ☙
BROMIDE Paper.

We make a speciality of this extremely rapid paper, which gives enlargements of great breadth of effect and perfect quality. Very little finishing or 'touching up' is required.

□ □ □
□

RAJAR COMPANY
MOBBERLEY · *England*

Sepia Simplicity.

This exactly describes the "RAJAR" One-Solution CONCENTRATED

Sepia Toner

◆

All you have to do is to place your BROMIDE or GASLIGHT prints in a bath made up of One Drop of Toner to every Ounce of Water. :: ::

BEAUTIFUL TONES on ALL PAPERS.—— PERMANENT.

Prices :—	1 oz. bottle	2/-	...	postage	4d.
	2 „	3/6	...	„	4d.
	8 „	12/-	...	„	9d.

RAJAR COMPANY
MOBBERLEY · *England*

Do you Print your own Negatives?

If so, try RAJAR

"AUTONA"

Self-Toning Paper

* * *

It will give you splendid results, and the tones range from Warm Sepia to Photographic Purple
by
SIMPLY FIXING IN
HYPO ONLY

Made in Glossy and Matt Surfaces.

RAJAR COMPANY
MOBBERLEY · *England*

"RAJAR"

ROLL FILMS

(Non-Curling—Isochromatic)

On Daylight Loading Spools

—TO FIT—

All Roll Film Cameras

❧

They are the fastest Roll Films made, and yield fully exposed negatives with all the detail in the shadows and the necessary contrast to produce bright :: :: plucky prints. :: ::

All dealers can supply, but insist upon The "RAJAR" Brand.

□ □ □

RAJAR COMPANY
MOBBERLEY · *England*

—AN—

APOLOGY

is never required when you show your friends the photographs you took on

"RAJAR"

PLATES

"Sorry they didn't come out"
or similar platitudes.

* * *

The 'Rajar' Special Rapid Plate

Is Absolutely Reliable

RAJAR COMPANY
MOBBERLEY · *England*

Special 92-B
750

GETTY CENTER LIBRARY

Printed and
Published by
RAJAR Co.,
Mobberley,
England.